AMENDMENTS TO THE CLAIMS

1.   (Currently Amended) A motor driving device, comprising:

exciting current detectors for detecting exciting currents of motor windings of a motor;

an exciting current amplitude computation means for computing the square of an exciting current amplitude value from exciting current detection values detected by said exciting current detectors; and

a voltage impression unit for impressing voltages at values corresponding to ~~said exciting current amplitude value or~~ the square of said exciting current amplitude value to the motor windings:

a current amplitude deviation detection means for computing a current amplitude square deviation value representing a difference between a square of a current amplitude command given from outside and a square of said exciting current amplitude value;

current command computation means for computing current commands in the form of at least one of sine wave signal and cosine wave signal on the basis of an angle command given from outside; and

multiplication means for multiplying values corresponding to said current amplitude square deviation value by said current commands,

wherein said voltage impression unit impresses voltages, corresponding to outputs of said multiplication means, to said motor windings; and

wherein said motor is a stepping motor, and said voltage impression unit feeds motor winding currents varying in the form of a sine wave every time an external command pulse is impressed.

2.   (Canceled)

3.   (Currently Amended) The motor driving device, according to ~~claim 2~~ claim 1, wherein said motor winding currents are fed by a PWM inverter.

4.   (Canceled)

5.   (Currently Amended) The motor driving device, according to ~~claim 4~~ claim 1, wherein said motor is a two-phase stepping motor, and said current command computation means compute said current command in the form of a sine wave signal and said current command in the form of a cosine wave signal on the basis of said angle command.

6.   (Currently Amended) The motor driving device, according to ~~claim 4~~ claim 1, wherein said motor is a stepping motor with not less than three phases, and said current command computation means compute said current commands in the form of the sine wave signal on the basis of said angle command.

7.   (Currently Amended) A motor driving device, comprising:

exciting current detectors for detecting exciting currents of motor windings of a motor;

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an exciting current amplitude computation means for computing an~exciting~current

amplitude~value~or the square of said an exciting current amplitude value from exciting current

detection values detected by said exciting current detectors; and

a voltage impression unit for impressing voltages at values corresponding to said~exciting

current~amplitude~value~or the square of said exciting current amplitude value to the motor

windings;

a current amplitude deviation detection means for computing a current amplitude square

deviation value representing a difference between the square of a current amplitude command

given from outside and the square of said exciting current amplitude value;

current command computation means for computing current commands in the form of at

least one of sine wave signal and cosine wave signal on the basis of an angle command given

from outside; and

multiplication means for multiplying values corresponding to said current amplitude

square deviation value by said current commands,

wherein said voltage impression unit impresses voltages, corresponding to outputs of said

multiplication means, to said motor windings.

8.   (Original) The motor driving device, according to claim 7, wherein said motor is

a two-phase stepping motor, and said current command computation means compute said current

command in the form of said sine wave signal and said current command in the form of said

cosine wave signal on the basis of said angle command.

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9.   (Original) The motor driving device, according to claim 7, wherein said motor is

a stepping motor with not less than three phases, and said current command computation means

compute said current commands in the form of said sine wave signal on the basis of said angle

command.

10.   (Currently Amended) ~~A motor~~ The motor driving device according to claim 7,

~~comprising:~~

~~exciting current detectors for detecting exciting currents of motor windings of a motor;~~

~~an exciting current amplitude computation means for computing an exciting current~~

~~amplitude value or the square of said exciting current amplitude value from exciting current~~

~~detection values detected by said exciting current detectors; and~~

~~a voltage impression unit for impressing voltages at values corresponding to said~~

~~exciting current amplitude value or the square of said exciting current amplitude value to the~~

~~motor windings;~~

wherein said motor is a two-phase stepping motor, said exciting current detectors detect

said exciting currents of said motor windings for two phases, respectively, and said exciting

current amplitude computation means finds ~~the square root of the sum of the squares of said~~

~~exciting current detection values for said two phases or~~ the sum of the squares of said exciting

current detection values for said two phases, thereby computing ~~said exciting current amplitude~~

~~value or~~ the square of said exciting current amplitude value.

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11.   (Currently Amended) ~~A motor~~ The motor driving device according to claim 7~~,~~

~~comprising:~~

~~exciting current detectors for detecting exciting currents of motor windings of a motor;~~

~~an exciting current amplitude computation means for computing an exciting current~~

~~amplitude value or the square of said exciting current amplitude value from exciting current~~

~~detection values detected by said exciting current detectors; and~~

~~a voltage impression unit for impressing voltages at values corresponding to said exciting~~

~~current amplitude value or the square of said exciting current amplitude value to the motor~~

~~windings;~~

wherein said motor is a stepping motor with not less than three phases, said exciting

current detectors detect said exciting currents of said motor windings for two phases,

respectively, and said exciting current amplitude computation means executes coordinate

transformation of said exciting current detection values for said two phases to find two

transformed exciting current values, whereupon ~~the square root of the sum of the squares of said~~

~~two transformed exciting current values or~~ the sum of the squares of said two transformed

exciting current values is found, thereby computing ~~said exciting current amplitude value or~~ the

square of said exciting current amplitude value.

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